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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/374,079	08/12/1999	TRACY D. HARMER	TI-27445	3296

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EXAMINER
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BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/374,079	HARMER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen M. Baker	2133	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-10 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,598,549 to Rathunde (hereafter "Rathunde") in view of U.S. Patent No. 5,974,544 to Jeffries et al (hereafter "Jeffries").

Rathunde discloses a computer system with a software RAID driver program (211) executed by a host computer. Each disk in Rathunde's RAID hard disk array comprises a "mass data storage device associated with said host computer". Rathunde's software RAID driver program (211) serves as a logical "device driver comprising software instructions for execution by said CPU for performing at least some ECC instructions on data read from said mass data storage device", the disk array serving as a logical device consisting of a plurality of physical devices *i.e.* the disk drives.

Regarding claim 1, Rathunde does not mention that each disk drive includes "ECC hardware". Including ECC hardware in disk drives, including disk drives used in a RAID system, was standard practice at the time the invention was made, as evidenced by Jeffries (col. 14, lines 39-44). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to realize Rathunde's disk drives as disk drives with ECC hardware. Such a realization would have been obvious because including ECC hardware in a

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disk drive, including a disk drive used in a RAID system, was already standard practice, as evidenced by Jeffries.

Regarding claim 3, Rathunde's host computer of course includes a RAM for storing instructions, presumably including the instructions of Rathunde's software RAID driver program (211).

Regarding claim 4, Official Notice is given that a including an ECC encoder in a disk drive, for generating ECC code during a write to the disk, was standard practice at the time the invention was made. The redundancy generated by an ECC encoder is of course "data integrity determination information". It would have been obvious to a person having ordinary skill in the art at the time the invention was made to realize Rathunde's disk drives as disk drives with ECC encoders. Such a realization would have been obvious because including an ECC encoder in a disk drive, for generating ECC during a write to the disk, was already standard practice.

Regarding claims 5 and 6, Rathunde does not mention that each ECC processing in a disk drive generates an "error flag" when an error is detected in data read from the disk. Generating, for use by a RAID data correction process, an "error flag" by ECC processing in a disk drive when an error is detected in data read from the disk was standard practice at the time the invention was made, as evidenced by Jeffries (column 64, line 56, col. 69, line 11). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to realize Rathunde's disk drives as disk drives with ECC processing that generates an "error flag" when an error is detected in data read

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from the disk. Such a realization would have been obvious because, as evidenced by Jeffries, generating an "error flag" by ECC processing in a disk drive for use by a RAID data correction process when an error is detected in data read from the disk was already standard practice.

***Allowable Subject Matter***

3. Claims 7-10 and 12 are allowed.

***Response to Arguments***

4. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker  
Primary Examiner  
Art Unit 2133

smb